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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09 246,918	02/09/1999	KARL M. ROBINSON	303.455US2	6845

7590

11/21/2002

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EXAMINER

FOURSON III, GEORGE R

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 11/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/246,918

Applicant(s)

ROBINSON, KARL M

Examiner

George Fourson

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 26 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 2-6, 10-18, 29-38, 50-52, 76 and 77 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 2-6, 10-18, 29-33, 37, 38, 50-52, 76 and 77 is/are rejected.
- 7) ☐ Claim(s) 34-36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 17 6) ☐ Other: _____

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/26/02 has been entered.

Claims 2-6, 14, 32 and 51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 4, there is no antecedent basis for "second capacitor plate". In claim 14, it is confusing to recite that a portion of the metal layer forms a portion of the first conductive layer because the metal layer is formed overlying the first conductive layer. In view of the 35 U.S.C. 112, second paragraph rejection of claim 4 there is a great deal of confusion and uncertainty as to the proper interpretation of the limitations of claim 4. As a result, the scope of claim 4 cannot be determined without considerable speculation or assumption. Therefore, claim 4 has not been rejected on the basis of prior art. See MPEP 2173.06. the claim seems to indicate that recitation of "a layer of a first material" encompasses two layers of different materials. Claims 2 and 32 are rejected for similar reason that claim 76 was previously rejected, namely for recitation of "electrically isolated". If the claims were amended similarly to the amendment of claim 76 the rejection would be overcome. In claim 51, there is no antecedent basis for "first metal layer".

Claim 51 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend

the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 50 requires the metal layer to comprise Ti.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10,11,13,14,15,29 and 30 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Hayakawa et al.

Claims 2-6,32,37,38,50,51,76 and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kahihara et al in combination with Gaulier et al and Hayakawa et al.

Kahihara et al discloses formation of a patterned, electrically isolated polysilicon layer 142 a conformal metal layer on the plug as a lower capacitor plate and a capacitor dielectric and second capacitor electrode (fig.83). The reference does not disclose anodization to form the capacitor dielectric.

Gaulier et al teaches formation metal-oxide-metal capacitors by anodization of a metal capacitor plate (col.1). The reference discloses use of metals other than Al.

Hayakawa teaches anodization of copper/titanium to form a metal-oxide-metal capacitor.

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Kahihara et al and Gaulier et al to enable formation of a capacitor connected to a source/drain region and to employ the materials of Hayakawa in view of their disclosed suitability as anodized capacitor electrode materials.

Claims 16,17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kahihara et al in combination with Gaulier et al and Hayakawa et al as applied to claims 2-6,32,37,38,50,51,76 and 77 above, and further in view of Dickey et al.

Gaulier does not disclose adjusting the current during the anodization process.

Dickey et al is applied as stated in the office action mailed 12/17/01 as providing motivation to adjust the current as recited.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kahihara et al in combination with Gaulier et al and Hayakawa et al as applied to claims 2-6,32,37,38,50,51,76 and 77 above, and further in view of Jones Jr. et al.

Kahihara et al in combination with Gaulier et al and Hayakawa et al does not disclose forming the top electrode from polysilicon. Jones Jr. et al discloses that selection of materials for capacitor electrodes depends in part on the material of the dielectric layer. The reference discloses use of doped silicon and titanium dioxide capacitor dielectric (col.4, line 51-col.5, line 15).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Kahihara et al in combination with Gaulier et al and Hayakawa et al and Jones Jr. et al to enable formation of the top capacitor electrode.

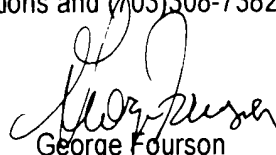
Claims 34-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956. See MPEP 203.08.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner George Fourson whose telephone number is (703) 308-2544. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794. The fax number for this group is (703)308-7722 (or extensions 7724, 3431 or 3432) for regular communications and (703)308-7382 for after final communications.


George Fourson
Primary Examiner
Art Unit 2823

GFourson
November 17, 2002